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ABSTRACT

Previous research linking life events and psychological well being may have been biased by traditional retrospective designs. To eliminate retrospective bias, a prospective design was used in which events were measured before the criterion had occurred. Subjects were 209 male and 159 female participants in the Augmented Baltimore Longitudinal Study of Aging, who reported their life events for the previous year on an 87-item checklist. Two months later they completed the Affect Balance Scale (ABS), a life satisfaction measure, Andrew and Withey's D-T scale, and Dupuy's General Well Being Scale. Subjects had completed the first three scales two years earlier, forming a composite measure of prestress well being. Results suggested that methodological artifacts seriously inflate event-outcome correlations in traditional self-report studies, especially in neurotic individuals who may (1) over-report stressful events, or (2) incur such events. The effect size for the overall scale was 11 times the size for the unconfounded scale when prestress well being was controlled. The actual causal impact of life events was trivial, suggesting that life event checklists are poor indicators of stress. A better strategy might be to employ a transactional approach. (JAC)

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Stressful Life Events and Psychological Well-Being: A Causal Relationship?

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Paper presented at the 92nd annual convention of the American Psychological Association, Toronto, Canada, August 1984.

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Author Notes

The research reported in this paper constitutes a portion of the author's doctoral dissertation, submitted to the Johns Hopkins University, University Microfilms No. DA 8315382.

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Stressful Life Events and Psychological Well-Being: A Causal Relationship?

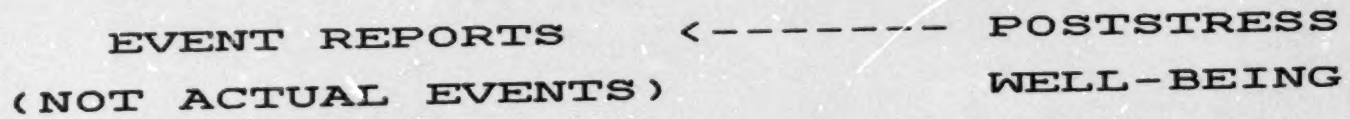
THE PROBLEM

Do stressful life events cause poorer well-being?

Evidence. Perhaps the most popular measure of stress in the literature has been the life event checklist. Tens and possibly hundreds of retrospective self-report studies have shown negative correlations between scores on event measures and various indices of psychological (and also physical) well-being, presumably establishing that life events cause poorer well-being (see Barrett, 1979, and Petrich & Holmes, 1981, for reviews). For example, Paykel (1974) reported significantly higher rates of life events for depressives, suicide attempters, and mixed neurotic groups, relative to normal groups, for the time period immediately prior to the onset of their disorders.

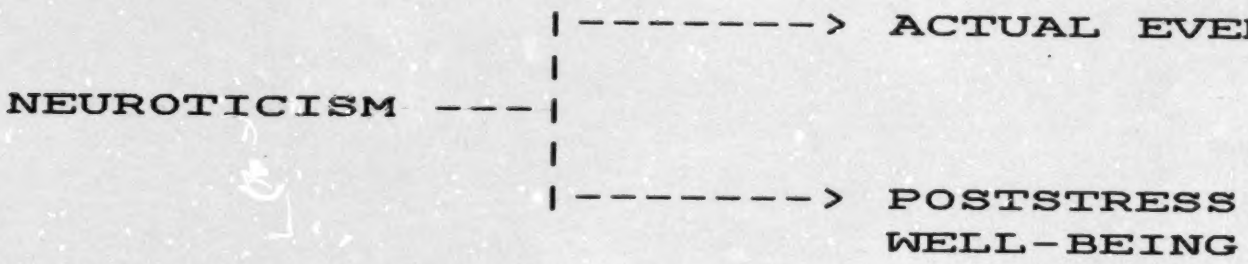
Limitations. In spite of the vast quantity of studies, their meaning and implications remain clouded by serious methodological weaknesses (Dohrenwend, 1979; Dohrenwend et al., 1982). It is possible that these studies have repeatedly obtained positive findings because they repeatedly allowed particular biases and confounds to operate. Some specific issues in traditional retrospective designs are as follows:

1. RETROSPECTIVE BIAS. Individuals who experienced poor well-being after the stress period may over-report stressful events for the stress period, creating a spurious correlation.



2. PREDICTOR-CRITERION CONFOUNDING. Event reports may reflect in part the same variables as the well-being measure (rather than measuring distinct, prior occurrences), creating a spurious correlation. Confounding could occur in either of two ways: (a) Relatively vague or subjective event items (e.g., in-law troubles) could be over-reported by neurotic individuals, who are also likely to experience poor psychological well-being. Thus, individuals with poor well-being would appear to have had high stress, when in fact it would simply be a reporting bias.

(b) Neurotic individuals may also be more likely to actually incur certain events, along with experiencing poor well-being. This would lead to another spurious (noncausal) stress-well-being correlation, because the actual cause would be prior neuroticism.



3. DIRECTION-OF-EFFECT. The occurrence of events could be objectively associated with poorer well-being, but it is possible that the poorer well-being is causing the events rather than vice

How does the present study deal with these issues?

RETROSPECTIVE BIAS. This study eliminates retrospective bias by using a prospective design, in which events are measured before criterion has occurred.

PREDICTOR-CRITERION CONFOUNDING. In this study, portions of the event measure that may be confounded with the criterion -- (a) subjective-judgment (vague) event items and (b) events that may be influenced by longstanding neuroticism -- are set apart from the (relatively) unconfounded events. Higher correlations for the subjective-judgment and neuroticism-related events than for the unconfounded events would (presumably) represent confirmation of confounding.

DIRECTION-OF-EFFECT. The well-being measure was administered both before and after the "stress year." After the unconfounded events were isolated, the event-well-being correlation was partialled to control for the influence of prestress well-being.

METHOD

Subjects

Subjects for this study were 209 male and 159 female participants in the Augmented Baltimore Longitudinal Study of Aging, an extended study of aging processes (age range: 24 to 89).

Procedures

Subjects reported their life events for the previous 12 months on a conventional 87-item event checklist, derived from the Holmes-Rahe (1967) Schedule of Recent Experience and other commonly-used measures. The checklist was divided into three mutually exclusive scales: events (potentially) caused by neuroticism, subjective-judgment events, and unconfounded events. The score on each scale consisted of the number of items checked.

The event scales are given in the Appendix.

Two months after completing the event checklist, subjects filled out four measures of psychological well-being: Bradburn's (1969) Affect Balance Scale (ABS), a life satisfaction measure, Andrews and Withey's (1976) "D-T" scale, and the General Well-Being scale by Dupuy (1972). Scores on each measure were standardized and then summed to yield a composite score for poststress well-being.

The ABS, the satisfaction measure, and the D-T scale had also been completed by this sample two years earlier. Those scores were also standardized and summed to form a composite measure of prestress well-being.

RESULTS

Simple correlations

The correlations between the event scales and poststress well-being (before prestress well-being was partialled) are given in the Table. Several findings may be noted:

1. The correlation for total events (-.32) is typical for self-report studies, but the correlation for the uncontaminated scale is substantially smaller (-.19).*

2. Both of the confounded event scales (neuroticism-related events and subjective-judgment events) also show significantly larger correlations* than the unconfounded scales, indicating that the confounding is inflating observed relationships.

Partialling for prestress well-being

Using the unconfounded event scale as the best indicator of events per se (with confounds removed), the partial correlation with prestress well-being controlled was found to be -.11 ($p < .05$). This indicates that the unconfounded, causal influence of Holmes-Rahe-type summed life-change events is extremely modest, and perhaps of little practical significance.

The correlations are shown in terms of effect sizes (R-squared) in the Figure.

Further analyses indicated that the low correlations for the unconfounded event scale were not due to the infrequency or lack of severity, undesirability, or uncontrollability for these events relative to the "confounded" events. In other words, these were fair comparisons in terms of stressfulness -- the higher correlations for the confounded scales must be attributed to artifact.

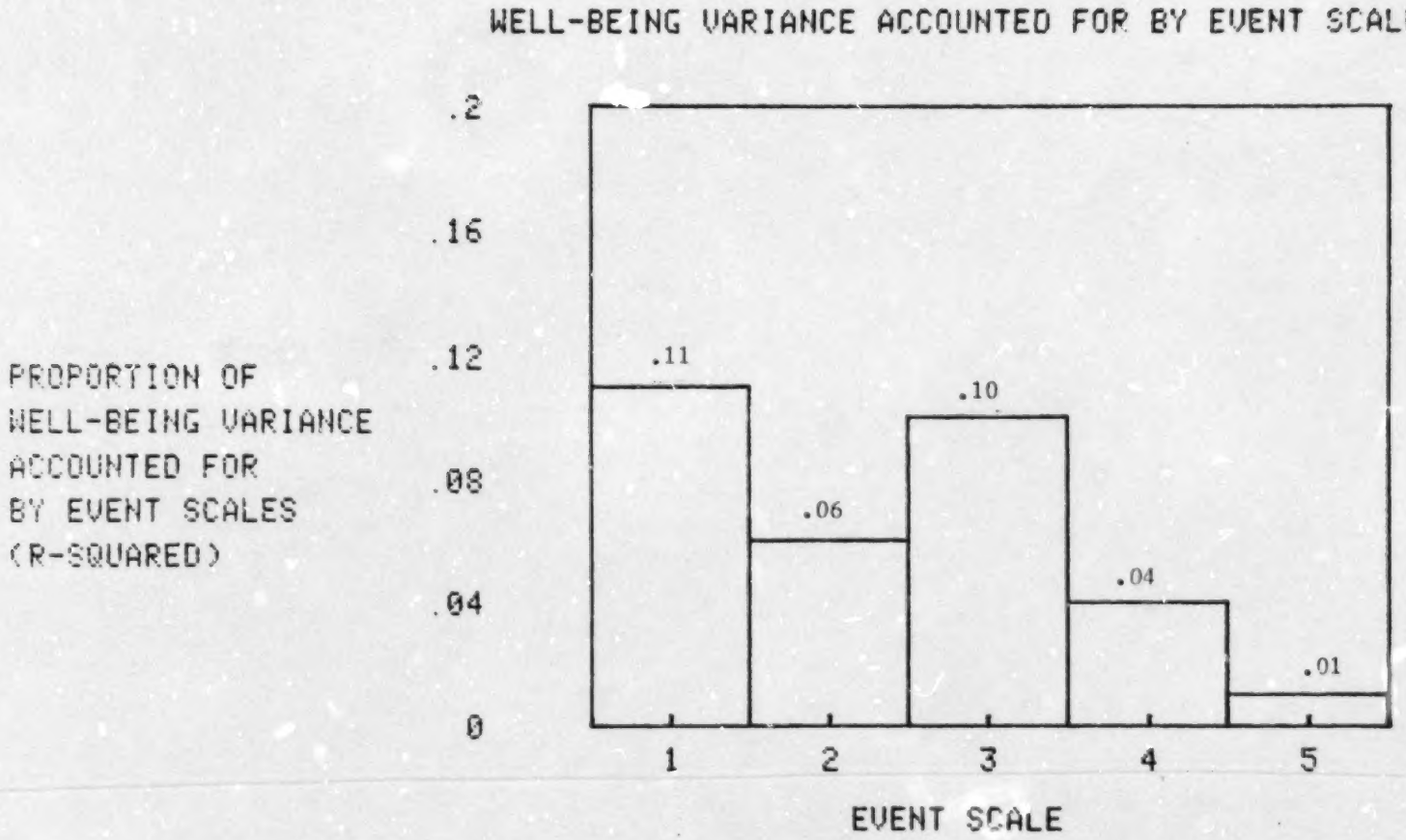
* The difference between correlations is significant at the .05 level, using McNemar's (1969) test for differences between correlations.

Table

Correlations of Event Scales with Prestress Psychological Well-Being

Scale	Well-being correlation
Neuroticism-related events	-.25
Subjective-judgment events	-.32
Unconfounded events	-.19
Total events	-.33

Notes. All correlations are significant beyond the .001 level. The sample consisted of 209 women and 159 men.


WELL-BEING VARIANCE ACCOUNTED FOR BY EVENT SCALES
PROPORTION OF WELL-BEING VARIANCE ACCOUNTED FOR BY EVENT SCALES (R-SQUARED)
.2
.16
.12
.08
.04
0
.11
.06
.10
.04
.01
1
2
3
4
5
EVENT SCALE
1 = TOTAL EVENTS
2 = NEUROTICISM-RELATED EVENTS
3 = SUBJECTIVE-JUDGMENT EVENTS
4 = UNCONFOUNDED EVENTS
5 = UNCONFOUNDED EVENTS PARTIALLED FOR PRESTRESS WELL-BEING

Figure

CONCLUSIONS AND IMPLICATIONS

1. Methodological artifacts seriously inflate event-outcome correlations in traditional self-report studies.

The effect size for the overall scale was eleven times the size for the unconfounded scale when prestress well-being was controlled. In a related study, Schroeder and Costa (1984) found that similar confounds accounted for all of the observed correlation between life event sums and measures of physical illness. Consequently, the results of traditional self-report studies are quite misleading: a large proportion of the reported correlations is probably due to artifact.

2. The actual causal impact of life event sums is trivially small.

The causal effect for life events in this study was .01. The Schroeder and Costa study found no effect at all for events on physical illness, when the confounds were controlled. These data suggest <u>either</u>:

(a) stress does not cause poorer psychological or physical well-being (beyond a trivial effect) <u>or</u>

(b) life event checklists are poor stress measures. In view of the evidence regarding potent stressors such as natural and manmade disasters (Baum, Fleming, & Singer, 1982) and bereavement (Helsing, Szklo, & Comstock, 1981), conclusion (b) seems more likely.

3. Life event checklists are probably poor indicators of stress -- other measures might show stronger effects.

As noted in #2, well-controlled studies show little effect for life event sums on psychological and physical well-being (see also Goldberg & Comstock, 1976; Theorell, Lind, & Floderus, 1975; and Thoits, 1981). But life event measures are probably rather limited measures of stress for two reasons:

a. Common life events are only one class of stressors. Ongoing conflicts, day-to-day hassles, and unique, idiosynchratic misfortunes are not reflected in lists of common events.

b. Putative stressors may cause vastly different degrees of actual stress in different individuals. Retirement may be traumatic for a workaholic, but liberating for a frustrated artist. A move to a higher class neighborhood may mean increased pride and security for one family, but social tension and fear of inadequacy for another.

4. A better strategy might be to employ a transactional approach to stress (Coyne & Lazarus, 1981).

Since different people respond very differently to the same stressors (presumably in theoretically predictable ways), stress measures need to consider characteristics of both the stressors and the individuals experiencing them, in order to estimate stress. In this approach, it would be necessary to identify the major needs and resources for each individual, in order to determine what circumstances would be disruptive (i.e.,

stressful). This would complicate the research task considerably, but would enable the field to move beyond reliance on designs that require methodological artifacts to achieve meaningful effects.

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Appendix

The Holmes-Rahe (1967) Schedule of Recent Experience comprised the first 42 events in the checklist. These items were classified as follows:

Neuroticism-related

Trouble with the boss, change in sleeping habits, change in eating habits, in-law troubles, sexual difficulties, major personal injury or illess, detention in jail, minor violation of law, divorce, separation, fired from work, foreclosure on mortgage or loan.

Subjective-judgment*

Revision in personal habits, change in recreation, change in social activities, change in church activities, change in family get-togethers, change in financial state, change in arguments with spouse, change in health/behavior of family member, outstanding personal achievement, change in working hours/conditions, change in responsibilities at work, change in living conditions.

Unconfounded

Death of family member(non-spouse), death of spouse, death of close friend, gain of new family member, change in residence, business readjustment, marriage, child leaving home, retirement, spouse beginning or ceasing working outside the home, mortgage or loan greater than $10,000, mortgage or loan less than $10,000, vacation, change to new school, change to new line of work, beginning or ceasing schooling, marital reconciliation, pregnancy, new job.

The remaining 45 events were drawn from other commonly-used event checklists and were classified as follows:

Neuroticism-related

Job demotion, troubles with children, problems with parents, repossession of merchandise, behind in loan/mortgage payments, credit difficulties, argument with friend/neighbor, hospitalization, difficulty obtaining treatment, failing eyesight, poorer hearing.

(None of the additional events were considered to involve subjective-judgment without also being neuroticism-related.)

Unconfounded

New job, job layoff, unemployment, quitting job, volunteering for the military, leaving the military, engagement, breaking engagement, steady dating, menopause, unwanted pregnancy, birth of first child, birth of second or later child, miscarriage, adoption of child, death of child, death of parent, death of sibling, illness/injury to family member, last child leaving home, child taking illegal drugs, child dropping out of school, family member in trouble with law, parent placed in nursing home, divorce of parent, car having to be replaced, suing or being sued, burglary of home, robbery/mugging, winning/inheriting substantial money or property, major improvement in health, major dental work, traffic accident, change in religious affiliation.

*Events which were considered to be neuroticism-related and to involve subjective judgment were placed on the neuroticism-related scale.